



PATENT  
Attorney Docket No. WPG-001  
(10003/2)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT(S): Chang et al.

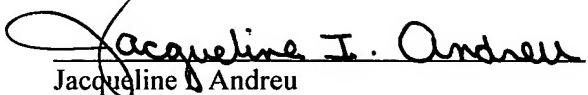
SERIAL NO.: 10/715,743 GROUP NO.: Not yet assigned

FILING DATE: November 17, 2003 EXAMINER: Not yet assigned

TITLE: Method for Fabricating Nanometer Gate in Semiconductor Device  
Using Thermally Reflowed Resist Technology

**CERTIFICATE OF FIRST CLASS MAILING UNDER 37 C.F.R. 1.8**

I hereby certify that this correspondence, and any document(s) referred to as enclosed herein, is/are being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 26<sup>th</sup> day of April, 2004.

  
Jacqueline I. Andreu

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith are:

- 1) Transmittal Form (1 pg.);
- 2) Information Disclosure Statement (2 pgs.);
- 3) PTO Form 1449 (2 pgs.);
- 4) Copies of non-patent publications (C1-C6); and
- 5) a Return-Receipt Postcard.



# TRANSMITTAL FORM

	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Application Serial Number</td><td style="padding: 2px;">10/715,743</td></tr> <tr> <td style="padding: 2px;">Filing Date</td><td style="padding: 2px;">November 17, 2003</td></tr> <tr> <td style="padding: 2px;">First Named Inventor</td><td style="padding: 2px;">Chang</td></tr> <tr> <td style="padding: 2px;">Group Art Unit</td><td style="padding: 2px;">Not Yet Assigned</td></tr> <tr> <td style="padding: 2px;">Examiner Name</td><td style="padding: 2px;">Not Yet Assigned</td></tr> <tr> <td style="padding: 2px;">Attorney Docket No.</td><td style="padding: 2px;">WPG-001</td></tr> <tr> <td style="padding: 2px;">Patent No.</td><td style="padding: 2px;">Not applicable</td></tr> <tr> <td style="padding: 2px;">Issue Date</td><td style="padding: 2px;">Not applicable</td></tr> </table>	Application Serial Number	10/715,743	Filing Date	November 17, 2003	First Named Inventor	Chang	Group Art Unit	Not Yet Assigned	Examiner Name	Not Yet Assigned	Attorney Docket No.	WPG-001	Patent No.	Not applicable	Issue Date	Not applicable
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First Named Inventor	Chang																
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**ENCLOSURES (check all that apply)**

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Check Attached <input type="checkbox"/> Copy of Fee Transmittal Form	<input type="checkbox"/> Copy of Notice to File Missing Parts of Application <input type="checkbox"/> Formal Drawing(s)	<input type="checkbox"/> Notice of Appeal to Board of Patent Appeals and Interferences <input type="checkbox"/> Appeal Brief (in triplicate)
<input type="checkbox"/> Amendment/Response <input type="checkbox"/> Preliminary <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Letter to Official Draftsperson including Drawings [Total Sheets ____]	<input type="checkbox"/> Request For Continued Examination (RCE) Transmittal <input type="checkbox"/> Power of Attorney (Revocation of Prior Powers) <input type="checkbox"/> Terminal Disclaimer	<input type="checkbox"/> Status Inquiry <input checked="" type="checkbox"/> Return Receipt Postcard <input checked="" type="checkbox"/> Certificate of First Class Mailing under 37 C.F.R. 1.8 <input type="checkbox"/> Certificate of Facsimile Transmission under 37 C.F.R. 1.8 <input type="checkbox"/> Additional Enclosure(s) (please identify below)
<input type="checkbox"/> Petition for Extension of Time	<input type="checkbox"/> Executed Declaration and Power of Attorney for Utility or Design Patent Application	<input type="checkbox"/> Small Entity Statement <input type="checkbox"/> CD(s) for large table or computer program
<input checked="" type="checkbox"/> Information Disclosure Statement <input checked="" type="checkbox"/> Form PTO-1449 <input checked="" type="checkbox"/> Copies of IDS Citations (C1-C6)	<input type="checkbox"/> Amendment After Allowance <input type="checkbox"/> Request for Certificate of Correction <input type="checkbox"/> Certificate of Correction (in duplicate)	
<input type="checkbox"/> Certified Copy of Priority Document(s)		
<input type="checkbox"/> Sequence Listing submission <input type="checkbox"/> Paper Copy/CD <input type="checkbox"/> Computer Readable Copy <input type="checkbox"/> Statement verifying identity of above		

**CORRESPONDENCE ADDRESS**

Direct all correspondence to: Patent Administrator  
 Testa, Hurwitz & Thibeault, LLP  
 High Street Tower  
 125 High Street  
 Boston, MA 02110  
 Tel. No.: (617) 248-7000  
 Fax No.: (617) 248-7100

**SIGNATURE BLOCK**

Respectfully submitted,

Steven J. Frank  
 Attorney for the Applicants  
 Testa, Hurwitz & Thibeault, LLP  
 High Street Tower  
 125 High Street  
 Boston, MA 02110



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Attorney Docket No. WPG-001

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APPLICANT(S): Chang et al.

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TITLE: Method for Fabricating Nanometer Gate in Semiconductor Device  
Using Thermally Reflowed Resist Technology

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

### INFORMATION DISCLOSURE STATEMENT

Sir:

In accordance with the provisions of 37 C.F.R. 1.97 and 1.98, Applicants hereby make of record the patents and publications listed on the accompanying Form PTO-1449, and other information contained herein, for consideration by the Examiner in connection with the examination of the above-identified patent application. In accordance with the U.S. Patent Office's partial waiver of the requirement under 37 C.F.R. 1.98(a)(2)(i), only copies of the non-patent publications are enclosed.

### REMARKS

In accordance with the provisions of 37 C.F.R. 1.97, this statement is being filed (CHECK ONE):

- (1) within three (3) months of the **filing date** of a national application other than a continued prosecution application under 37 C.F.R. 1.53(d), or within three (3) months of the **date of entry of the national stage** as set forth in 37 C.F.R. 1.491 in an international application, or before the mailing of the **first Office action** on the merits, or before the mailing of a **first Office action** after the filing of a request for continued examination under 37 C.F.R. 1.114; or
- (2) after the period defined in (1) but before the mailing date of a **final action** or a **notice of allowance** under 37 C.F.R. 1.311, and
- the requisite Statement is below, **OR**
- the requisite fee under 37 C.F.R. 1.17(p), namely **\$180.00**, is included herein, or

Information Disclosure Statement

Serial No. 10/715,743

Attorney Docket No. WPG-001

Page 2 of 2

- (3) after the mailing date of a **final action or notice of allowance** but before the payment of the issue fee, AND
- the requisite Statement is below, AND
- the requisite petition fee under 37 C.F.R. 1.17(p), namely **\$180.00** is included herein.

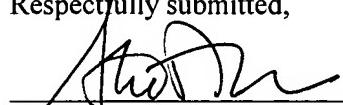
It is respectfully requested that each of the patents and publications listed on the attached Form PTO-1449, and other information contained herein, be made of record in this application.

**STATEMENT**

As required under 37 C.F.R. 1.97(e), Applicant(s), through the undersigned, hereby state either that [check the appropriate space only if either (2) or (3) is checked on the previous page and the Statement is required]:

1. Each item of information contained in the Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application **not more than three months** prior to the filing of the Information Disclosure Statement; or
2. No item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing this Statement after making reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to **any individual** designated in 37 C.F.R. 1.56(c) **more than three months** prior to the filing of the Information Disclosure Statement.

Respectfully submitted,

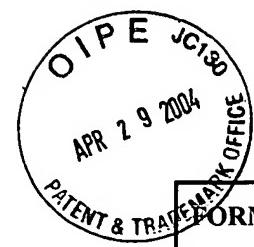
  
\_\_\_\_\_  
Steven J. Frank

Attorney for the Applicants  
Testa, Hurwitz, & Thibeault, LLP  
High Street Tower  
125 High Street  
Boston, Massachusetts 02110

Date: April 26, 2004  
Reg. No. 33,497

Tel. No.: (617) 310-8108  
Fax No.: (617) 248-7100

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SHEET 1 OF 2

INFORMATION DISCLOSURE STATEMENT					ATTORNEY DOCKET NO.: WPG-001 APPLICANT(S): Chang et al. SERIAL NO.: 10/715,743 FILING DATE: 11/17/03 GROUP: Not Yet Assigned				
U.S. PATENT DOCUMENTS									
EXAM. INIT.		DOCUMENT NUMBER	DATE	NAME		CLASS	SUB CLASS	FILING DATE IF APPROPRIATE	
	A1	6,143,626	11/07/00	Yabu et al.					
	A2	5,918,142	06/29/99	Park et al.					
	A3	5,834,346	11/10/98	Sun et al.					
	A4	5,759,886	06/02/98	Chung					
	A5	5,728,627	03/17/98	Nam et al.					
	A6	5,716,891	02/10/98	Kodama					
	A7	5,552,342	09/03/96	Itou et al.					
	A8	5,006,480	04/09/91	Chang et al.					
	A9	4,935,380	06/19/90	Okumura					
	A10	4,830,974	05/16/89	Chang et al.					
	A11	4,824,767	04/25/89	Chambers et al.					
	A12	4,363,830	12/14/82	Hsu et al.					
FOREIGN PATENT DOCUMENTS									
EXAM. INIT.		DOCUMENT NUMBER	DATE	COUNTRY CODE	CLASS	SUB CLASS	FILING DATE	ABSTRACT ONLY	ENGLISH LANG (Y/N)
OTHER ART, JOURNAL ARTICLES, ETC.									
EXAM. INIT.	OTHER DOCUMENTS: (Including Author, Title, Date, Relevant Pages, Place of Publication)								
	C1	<i>Formation of submicron T-gate by rapid thermally reflowed resist with metal transfer layer</i> , C.C. Meng, G.R. Liao and S.S. Lu: ELECTRONICS LETTERS, Vol. 37 No. 16 (2001) pp. 1045-1046.							
	C2	<i>Thermal Flow and Chemical Shrink Techniques for Sub-100 nm Contact Hole Fabrication in Electron Beam Lithography</i> , Hsuen-Li Chen, Fu-Hsiang Ko, Lung-Sheng Li, Chien-Kui Hsu, Ben-Chang Chen and Tieh-Chi Chu: Jpn. J. Appl. Phys. Vol. 41 (2002) pp. 4163-4166.							
	C3	<i>Fabrication of 0.2 μm Gate Pseudomorphic Inverted Hemt By Phase-Shifting Technology</i> , H.T. Yamada, R. Shigemasa, H.I. Fujihiro, S. Nishi and T. Saito: Solid State Electronics Vol. 38, No. 9 pp. 1631-1634, 1995.							

<b>FORM PTO – 1449</b>  <b>INFORMATION DISCLOSURE STATEMENT</b>		ATTORNEY DOCKET NO.: WPG-001  APPLICANT(S): Chang et al.  SERIAL NO.: 10/715,743  FILING DATE: 11/17/03 GROUP: Not Yet Assigned
<b>OTHER ART, JOURNAL ARTICLES, ETC.</b>		
<b>EXAM. INIT.</b>	<b>OTHER DOCUMENTS: (Including Author, Title, Date, Relevant Pages, Place of Publication)</b>	
	C4	<i>30-nm-Gate InP-Based Lattice-Matched High Electron Mobility Transistors with 350 GHz Cutoff Frequency</i> , T. Suemitsu, T. Ishii, H. Yokoyama, T. Enoki, Y. Ishii and T. Tamamura: Jpn. J. Appl. Phys. Vol. 38 (1999) pp. L154-156.
	C5	<i>Improved Recessed-Gate Structure for Sub-0.1-<math>\mu</math>m-Gate InP-Based High Electron Mobility Transistors</i> , T. Suemitsu, T. Enoki, H. Yokoyama and Y. Ishii: Jpn. J. Appl. Phys. Vol. 37 (1998) pp. 1365-1372.
	C6	<i>Ultra-Short 25-nm-Gate Lattice-Matched InAlAs/InGaAs HEMTs within the Range of 400 GHz Cutoff Frequency</i> , Yoshimi Yamashita, Akira Endoh, Keisuke Shinohara, Masataka Higashiwaki, Kohki Hikosaka and Takashi Mimura: IEEE Electron Device Letters. Vol. 22 No. 8 (2001) 367-369.
<b>EXAMINER</b>		<b>DATE CONSIDERED</b>